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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/626,967	07/27/2000	Ayahito Kojima	1081.1093/JDH	1013

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EXAMINER

ALPHONSE, FRITZ

ART UNIT	PAPER NUMBER
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2675

14

DATE MAILED: 04/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/626,967

Applicant(s)

KOJIMA ET AL.

Examiner

Fritz Alphonse

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 February 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otawara (JP 11146306 A) in view of Tajima (5,818,419).

As to claim 1, Otawara (figs. 1, 2) teaches about a plasma display apparatus, which represents the luminance of one frame (i.e., field) in accordance with a combination of sub-frames (i.e. sub-field) having predetermined luminance levels, comprises: a data converter (note the A/D converter 1) for converting input video data (S1) into output data in which the ON/OFF states of the sub-frames are specified; wherein the sub-frames include a smaller luminance sub-frame having a luminance level which is lower than the minimum gray scale level of luminance (note in Otawara the subfield is $\frac{1}{2}$ of a subfield corresponding to the LSB of a video signal) which can be represented by the number of bits in the input video data (page 2, lines 17-24).

Otawara does not teach about a number of gray scale levels of the output data is greater than a number of gray scale levels of the input video data.

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However, in the same field of endeavor, Tajima (figs. 16-17, 20) discloses a display device wherein a number of bits of the converted output RMD forming the number of gray scale levels of the output data is greater than a number of bits of address RMA input representing the number of gray scale level of the input video data (col. 19, lines 3-13; see figures 16, 20).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to improve upon the display device, as disclosed by Tajima. Doing so would provide a more compact PDP display device having a high picture quality.

As to claims 2-3, Otawara (fig. 1) discloses a plasma display apparatus, wherein the data converter has a plurality of conversion characteristics, and a desired conversion characteristic is selected in accordance with a mode set signal to select said plurality of conversion characteristics, and wherein said input video data are supplied in accordance with a plurality of primary colors, and said conversion characteristics of said data converter are selectively determined for each of said primary colors (page 3, lines 15 to page 4, line 3).

As to claim 4, Otawara (fig. 1) discloses a plasma display apparatus, wherein the data converter (1) has a conversion characteristics in which an increase rate of the luminance of said output data in a first gray scale area for said input video data, differs from an increase rate of said luminance of said output data in a second gray scale area, whose luminance is higher than said first gray scale area (see page 4, lines 5-26).

As claim 5, Otawara (fig. 1) shows a data converter used with a plasma display apparatus which represents the luminance of one frame (i.e., field) in accordance with a combination of

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sub-frames (i.e. sub-field) having predetermined luminance levels, wherein video input data (S1) of each pixel is converted into output data in which the ON/OFF states of the plurality of sub-frames are specified, and the sub-frames include a smaller luminance sub-frame which has a luminance level lower than the minimum gray scale level of luminance which can be represented by the number of bits in the input video data (page 2, lines 17-24).

Otawara does not explicitly disclose "a number of gray scale levels of the output data is greater than a number of gray scale levels of the input video data". However, this limitation is disclosed by Tajima (col. 19, lines 3-13; see figures 16, 20). See the motivation above.

As to claim 6, Otawara (fig. 1) shows a data converter (1), wherein a conversion characteristic of the data converter is that an increase rate of the luminance of the output data in a first gray scale area for the video input data is lower than an increase rate of the luminance of the output data in a second gray scale area, whose is higher luminance than that in the first gray scale area (page 2, lines 17-24).

As to claim 7, method claim 7, corresponds to apparatus 1, therefore, it is analyzed as previously discussed in claim 1 above.

Conclusion

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fritz Alphonse whose telephone number is (703) 308-8534.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Saras, can be reached at (703) 305-9720.

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Any response to this action should be mailed to:

Commissioner of Patents and Trademarks Washington, D.C. 20231

or faxed to: (703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,
Arlington. VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding
should be directed to the Technology Center 2600 Customer Service Office whose telephone
number is (703) 306-0377.


F. Alphonse

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April 4, 2004


STEVEN SARAS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600